# Premature adrenarche in Silver-Russel Syndrom: a longitudinal study

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## Introduction and Objectives

**Background:**

- Silver-Russel syndrom (SRS) is a growth disorder characterised by prenatal and postnatal growth retardation, relative macrocephaly, prominent forehead, triangular face and body asymmetry (1). SRS is reported to be associated with early adrenarche (2), but substantial studies are lacking.

**Objective and hypotheses:**

- We aimed to determine the median age at onset of adrenarche by SRS, the prevalence of premature adrenarche as well as its causes and consequences.

## Results and Conclusions

**Results:**

- The median age at onset of adrenarche was 7.85 years in females (range, 5.28-11.24)(n=24) and 9.22 years in males (range, 5.26-13.81)(n=33) (cf. figure 1).
- Within the total group, 52.5 % (31/59) had premature adrenarche (cf. figure 2).
- The predictor of premature adrenarche was birth weight SDS (P=0.037) (cf. figure 3), but not birth length SDS, sex, BMI at 2 years or height SDS at 2 years of age (n=54).
- Based on the current data a deleterious effect of early adrenarche on the outcome of GH therapy was not detectable: t-test of distance to target height VS prematurity with p=0.051 (data not shown, study still on going).

**Conclusions:** (study still on going)

- Premature adrenarche was frequent and predictable by birth weight SDS, but not by birth length SDS, sex, height or BMI at 2 years of age.
- The collection of longitudinal data of additional SRS patients is necessary to analyse consequences for metabolism and growth.

**Figure 1 – Median Onset of Adrenarche**

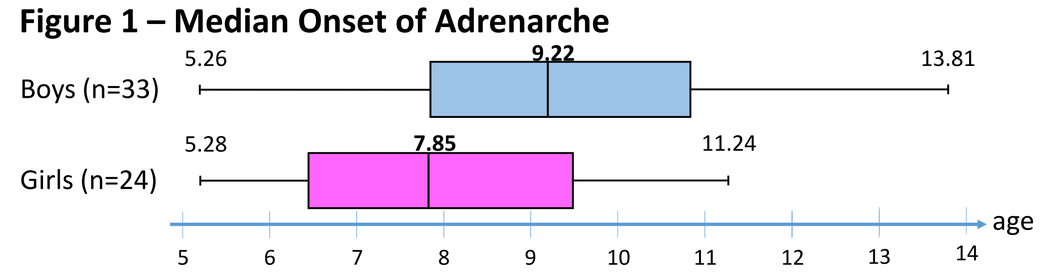



**Figure 2 – premature Adrenarche (n=59)**

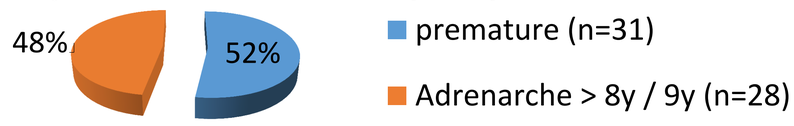
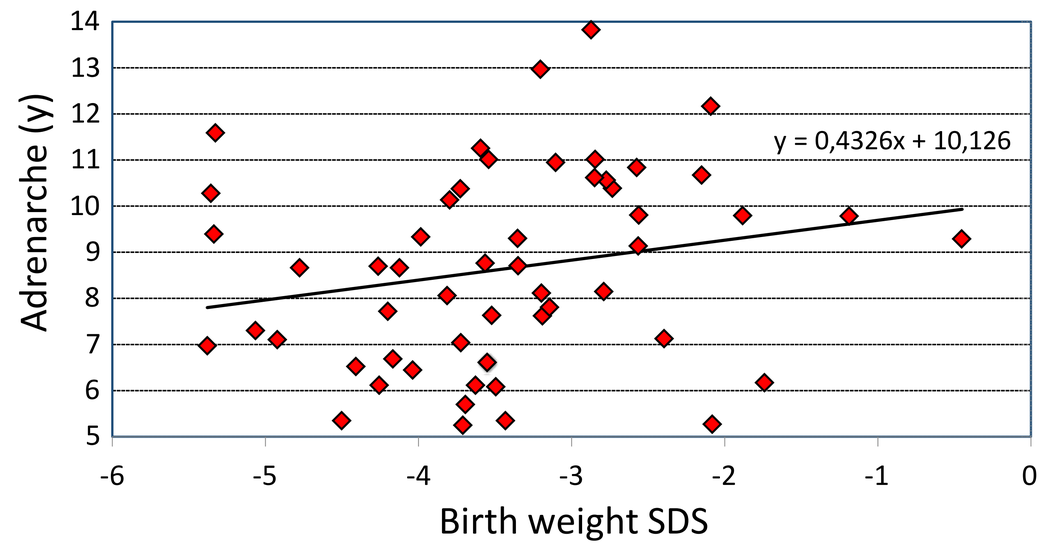



**Figure 3 – Birthweight SDS VS Adrenarche**

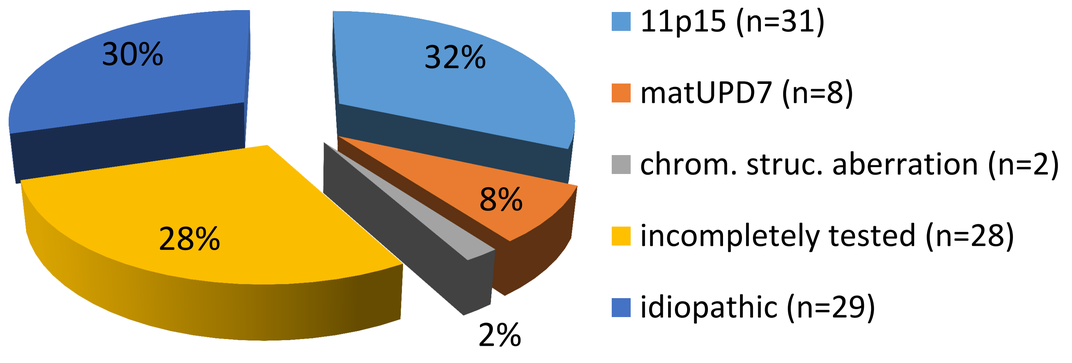



## Methods

- Currently we have collected longitudinal data from 98 children with SRS seen during the last 20 years in our centre. The patients fulfilled ≥4 criteria of the Netchine-Harbinson-Score (3) (cf. table 1) or had a genetically proved diagnosis such as 11p15 or matUPD7.
- Maternal uniparental disomy of chromosome 7 was present in 8 patients, 11p15 loss of methylation in 31 patients, structural chromosomal aberrations outside of 11p15 in 2 patients, 29 patients were negative and 28 patients were incompletely tested (cf. figure 4). Out of the 98 patients, 78 were treated with GH.
- Age at adrenarche was defined as the first time point when serum DHEAS was > 500 ng/ml or pubarche (PH2) began.
- Start of adrenarche before 8/9 years of age (girls/boys) was defined to be premature.
- DHEAS was measured by the same chemiluminescence immunoassay during the full study period.

| Table 1 - The SRS patients fulfilled ≥4 criteria of the NH-score |
|---|
| ➢ SGA at birth |
| ➢ Failure to thrive in infancy or BMI < -2 SDS |
| ➢ Short stature |
| ➢ Relative macrocephaly |
| ➢ Prominent forehead |
| ➢ Skeletal asymmetry |

**Figure 4 - Molecular genetics of the SRS patients (n=98)**




## References

1- Eggermann T, Gonzalez D, Spengler S, et al. Broad clinical spectrum in Silver-Russell syndrome and consequences for genetic testing in growth retardation. Pediatrics 2009; 123:e929.,
Price SM, Stanhope R, Garrett C, et al. The spectrum of Silver-Russell syndrome: a clinical and molecular genetic study and new diagnostic criteria. J Med Genet 1999; 36:837. (from UpToDate)
2- Ibanez et al, 1999
3- Azzi S, Salem J, Thibaud N, Chantot-Bastaraud S, Lieber E, Netchine I, Harbison MD 2015 A prospective study validating a clinical scoring system and demonstrating phenotypical-genotypical correlations in Silver-Russell syndrome. J Med Genet 52(7):446-53

**Disclosure:** the authors have nothing to disclose

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